

PLASTIC WASTE-TO-FUEL/ENERGY TECHNOLOGIES

- ANIMAL, MINERAL OR VEGETABLE – WHAT DO YOU CALL THIS???
- OR
- FINDING THE RIGHT BOX.



REVIEW OF P2F TECHNOLOGY

- PLAN IS TO INSTALL 16 PROCESSING UNITS
- FEEDSTOCK: 33,000,000 LBS/YEAR OF MIXED PLASTIC
- RECLAMATION GOAL: 3,640,000 GALLONS OF SYNTHETIC CRUDE OIL (87,000 BARRELS) PER YEAR
- WASTE GENERATED:
 - 3,036,000 LBS/YEAR OF CHAR

REGULATORY/PERMITTING ISSUES

- AIR QUALITY PERMIT
 - REGULATED BY CLEAN AIR ACT
 - DELEGATED TO THE STATE OF OREGON
 - EMISSION SOURCES
 - FUEL TO HEAT UNITS – PROPANE OR NATURAL GAS
 - PARTICULATE MATERIAL FROM MATERIAL GRINDING
 - NON-DESTRUCTIBLE GASES
 - DISPLACEMENT GASES FROM STORAGE TANKS

SOLUTION OR PROBLEM?



SOLID WASTE ISSUES

- PERMITTED IN OREGON AS A SOLID WASTE TREATMENT FACILITY BECAUSE OF PYROLYSIS.
- WE HAVE CONTENDED THAT WE ARE RECYCLING AND THEREFORE EXEMPT FROM SOLID WASTE PERMITTING:
 - *“Recycling” means any process by which solid waste materials are transformed into new products in a manner that the original products may lose their identity. ORS459.005(20)*

SOLID WASTE ISSUES

- PER OREGON ATTORNEY GENERAL (1994)
- *“PYROLYSIS OF PLASTICS IS NOT RECYCLING TO THE EXTENT THE END PRODUCT OF THAT PROCESS IS A FORM OF ENERGY.”*
- ORS 459.005 *“‘ENERGY RECOVERY’ MEANS RECOVERY IN WHICH ALL OR A PART OF THE SOLID WASTE MATERIALS ARE PROCESSED TO USE THE HEAT CONTENT, OR OTHER FORMS OF ENERGY, OF OR FROM THE MATERIAL.”*

OTHER SOLID WASTE ISSUES

- REDUCE, REUSE, RECYCLE, COMPOST, ENERGY HIERARCHY
- GREEN HOUSE GAS CONSIDERATION
- LACK OF FUNDING FOR SOLID WASTE TO ENERGY

WATER QUALITY PERMITTING

- NPDES PERMIT FOR SURFACE WATER DISCHARGE ONLY BECAUSE OF OUTSIDE STORAGE OF PLASTIC FEEDSTOCK.
- WATER IN THE PLASTIC CONDENSER UNIT WILL NEED TO BE FILTERED AND REUSED.
- FILTRATION THROUGH AN ION EXCHANGE CARTRIDGE. CARTRIDGE HANDLED BY A RCRA AUTHORIZED DISPOSAL COMPANY. (LIKE A TONER CARTRIDGE)

HAZARDOUS WASTE ISSUES

- SOME CADMIUM AND LEAD HAS SHOWN UP IN CHAR. (ABOUT 2 OUT OF 20 BATCHES)
- BATCHES THAT EXCEED RCRA METAL STANDARDS WILL NEED TO BE DISPOSED OF AS HAZARDOUS MATERIALS THROUGH A LICENSED HAZ WASTE DISPOSAL PROVIDER
- OR BENEFICIALLY USED IN AN APPROVED END-PRODUCT.
- NO HAZ WASTE PERMIT IS NEEDED JUST \$\$\$

OTHER PERMITTING ISSUES

- PILOT TO PRODUCTION
- WASTE STREAM RESTRICTIONS
- HOW LONG DOES THE PERMITTING PROCESS TAKE?



END USE OPTIONS:

OIL

CHAR

SYNTHETIC CRUDE OIL:

REFINED PETROLEUM PRODUCTS
MANUFACTURERS OF VIRGIN PLASTIC
DIESEL FUEL
BUNKER FUEL

CHAR:

BRIQUETS FOR FUEL
CARBON BLACK INK ADDITIVE



ECONOMIC FACTORS

SIZING A SYSTEM FOR INVESTMENT/RETURN NEEDS

WASTE STREAM MARKET VOLUMES AND
COLLECTION COSTS

- AGRICULTURAL PLASTIC
- INDUSTRIAL MATERIALS
- OIL/LUBRICANT CONTAINERS

OPERATIONAL COSTS AND OPPORTUNITIES

- COST TO PRODUCE OIL
- JOB CREATION
- MAINTENANCE AND DOWNTIME
- GROWTH OPPORTUNITIES



FUNDING

- NOT RENEWAL ENERGY
- NOT PUBLIC WORKS PROJECT
- ENERGY TAX CREDIT PROGRAM UNDER FIRE
- NOT RECYCLING
- NOT READY
- NOT IN ANYBODY'S BOX UNTIL

- HB 3592 THE PLASTICS RECYCLING ACT OF 2009
- INTRODUCED IN THE HOUSE FALL 2009
- CURRENTLY HAS 20 CO-SPONSORS
- SENATOR RON WYDEN-(D) OREGON STAFF WRITING SENATE VERSION
- NEED SUPPORT

CONTACT INFORMATION

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